

Renewable Energy Interfaced Shunt Active Filter Using a Virtual Flux Direct Power Control

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Abstract : In this study, we present a control method entitled virtual flux direct power control of a grid connected photovoltaic system associated with an active power filter. The virtual flux direct control of power (VF-DPC) is employed for the calculation of reference current generation. In this technique, the switches states of inverter are selected from a table of switching based on the immediate errors between the active and reactive powers and their reference values. The objectives of this paper are the reduction of Total Harmonic Distortion (THD) of source current, compensating reactive power and injecting the maximum active power available from the PV array into the load and/or grid. MATLAB/SIMULINK simulations are provided to demonstrate the performance of the proposed approach.

Keywords : shunt active power filter, VF-DPC, photovoltaic, MPPT

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